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ABSTRACT

The purpose of this study was to describe the relationship between spatial division of the early childhood classroom and teachers' perceptions of changes in this division. Eighty-four teachers were given photographs of a classroom which was presented in low, moderate, and high levels of spatial division. As they viewed each photograph, subjects were asked to rate their perceptions using a semantic differential scale. Data were analyzed using descriptive statistics and discriminant analysis. Differences in spatial division of an early education classroom did result in varying perceptions. Teacher perceptions of the three different classroom conditions were statistically distinct. Certain word pairs on the semantic differential scale (such as large/small, simple/complex, spacious/constricted, and colorful/colorless) were identified as being descriptive of differences in classroom spatial division. It was concluded that the results support the theoretical position that there is a reciprocal and interactive relationship between individuals and their physical environment. (Author/RH)

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Effects of Spatial Division on Teachers'
Perception of an Early Education Classroom

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Effects of Spatial Division on Teachers' Perceptions of an Early Education Classroom

Very few guidelines exist which help educators make decisions about the physical environment of the classroom. Knowledge about specific variables influencing child-environment interactions can be used to develop guidelines that will help teachers make the best possible match between the environmental circumstances of the classroom and children's needs. The ability to make this match is dependent upon the teacher's knowledge of the relationships which exist among these variables. The present study will explore relationships among classroom conditions and teachers' perceptions of: a) the classroom; b) teacher; and c) child behaviors.

Theoretical Framework and Rationale

The theoretical framework of the research may be summarized in three sections. The primary perspective of the study is ecological. Development of young children takes place within the context of homes, parents, classrooms, teachers, communities, etc. There is a reciprocal and interactive relationship between the individual and one's environment which is constantly active. It is also the individual's perceptions of the environment which matter in terms of behavior in this relationship rather than "objective reality". This perspective is closely related to the work of Kurt Lewin (1938, 1951) and Urie Bronfenbrenner (1979).

Secondly, the study's rationale is related to societal changes. Our society has become increasingly interested in the care and education of young children. Changes in the structure of American families, such as the rising number of working women with young children and single parent families, have contributed to this interest. More young children than ever are spending all or part of their day in some kind of program outside the home. In spite of declining birth rates, enrollment in early childhood programs has increased steadily in the past 15 years.

Thirdly, as families have changed, knowledge of human development has increased. Strong emphasis has been placed on the importance of the first six years of life. Thus, the early learning environment is extremely important because of the critical nature of the period between birth and school age. Because family life is changing and early education settings are becoming more valued, the responsibility of providing the best possible learning environment for young children often lies with early childhood personnel.

Purpose

The purpose of this research was to determine the effects of spatial division on teachers' perceptions of the classroom. The results provide some practical guidelines to use in creating educational environments for young children.

The theoretical framework has led the researcher to begin a systematic investigation of specific aspects of young children's environments. It is hoped that the information from this investigation will result in the development of guidelines which will help teachers make the best possible match between the environment and each child's developmental level. The study represents the investigation of a small part of the child's environment; i.e., spatial division of the early childhood classroom and teachers' perceptions of changes in the spatial division.

Method

Subjects

The subjects were 83 teachers from Whatcom County, Washington. Subjects were selected using community resource lists of preschools, day care centers, and day care homes. Effort was made to contact all programs in the county. A majority of teachers in the identified programs agreed to participate in the study.

Subjects were mostly female, aged 21-34, working in a variety of program types with children aged 0-6 years. Many were from programs serving over 40 children from a range of different socioeconomic backgrounds.

Procedures

Photographs were taken of an early education classroom with varying levels of spatial division (low, moderate, and high). Two views of each condition were used; therefore subjects were shown six photographs. The photographs were mixed systematically in their order of presentation to the subjects. As they viewed each photograph, the subjects were asked to complete a questionnaire composed of semantic differential scales which used word pairs such as: complete/incomplete; friendly/unfriendly; spacious/constricted; complex/simple. (See attached questionnaire). Teachers rated their perceptions of: a) the classroom characteristics; b) potential behaviors of a teacher in the setting; and c) potential behaviors of a child. The dependent variable was teachers' perceptions as measured by the semantic differential scales. The independent variable was classroom condition. Teachers were also asked to indicate which of the photographs represented the classroom in which they would feel most comfortable teaching.

Results

Data were analyzed using descriptive statistics and discriminant analysis. The following sections summarize the results of these procedures.

Descriptive Statistics

Mean scores of the rating scales indicated some basic differences among the three classroom conditions.

a) Classroom Characteristics

<u>Low Condition (1)</u>	<u>Moderate Condition (2)</u>	<u>High Condition (3)</u>
More incomplete than the moderate or high condition	More spacious than the high condition, but less spacious than the low condition	Fuller than the low or moderate conditions
More spacious than the moderate or high conditions	Larger than the high condition, but not as large as the low condition	Harder than the moderate condition, but not as hard as the low condition
Larger than the moderate or high conditions	Simpler than the high condition, but less simple than the low condition	More colorless than the low or moderate conditions
Simpler than the moderate or high conditions	More organized than the low or high condition	
More organized than the high condition, but less organized than the moderate condition		
Harder than the moderate or high conditions		
More colorless than the moderate condition, but less colorless than the high condition		

b) Teacher Behavior

<u>Low Condition (1)</u>	<u>Moderate Condition (2)</u>	<u>High Condition (3)</u>
		Teacher behavior busier than in the low or moderate condition

c) Child Behavior

<u>Low Condition (1)</u>	<u>Moderate Condition (2)</u>	<u>High Condition (3)</u>
		Child behavior busier than in the low or moderate conditions

When asked to indicate the classroom they would feel most comfortable teaching in, teachers indicated a strong preference for the moderate and high conditions. Of the 81 teachers responding to this question, 7 preferred the low condition, 33 preferred the moderate condition, and 41 preferred the high condition.

Discriminant Analysis

Discriminant analysis was used to determine whether the variables selected for use in the semantic differential could be used successfully to predict group membership. Discriminant analysis was performed by separating the dependent variable into its three sections (classroom, teacher, and child) and using classroom conditions as groups. Thus, three discriminant analyses were completed. The scores for each subject were treated as separate groups so that there were three groups (conditions low, moderate, and high), each of which contained 83 subjects.

Because there were three groups, the prior probability for each group was .33333. The percent of cases grouped correctly was 69.13 for the classroom variables, 45.11 for the teacher variables, and 46.22 for the child variables. Only the analysis of the classroom variables will be discussed because it appears that these are the variables which have the most predictive value for group membership.

Before discriminant functions could be generated, the three groups had to be shown to be significantly different from one another. This was measured by the Wilks' lambda statistic. Wilks' lambda was calculated to be .438457. The probability of obtaining an equivalent F ratio this large by chance was less than .01. The variables of the semantic differential do discriminate among the groups (classroom conditions).

Two discriminant functions were created. The variables contributing most to the first function were: spacious/constricted, simple/complex, full/empty, and color/colorless. The variables contributing most to the second function were: large/small, full/empty, calm/restless, soft/hard, and color/colorless. The first function accounted for 86.73 percent of the variance, while the second function accounted for only 13.27 percent of the predictable group variance.

Group centroids were calculated using the functions and group means. The group centroids are illustrated in Table 1.

GROUP	FUNCTION 1	FUNCTION 2
1	-0.82728	0.44278
2	-0.55881	-0.49735
3	1.39320	0.06090

Table 1

The group centroids indicate that Group 3 is most distinguishable of the three groups. The territorial map and scatterplot for the classroom variables confirm visually that the three groups are indeed distinct and that the third group is most distinct.

Discussion

Distinct variables can be identified which are associated with teachers' perceptions of characteristics in different classroom conditions, and a teacher's or child's behavior in a particular classroom condition. Differences in spatial division of early education classrooms (i.e., low, moderate, and high conditions) do result in varying perceptions as measured by the dependent variable. Certain portions of the semantic differential were more effective than others in contributing to this difference. These word pairs are listed below.

<u>Classroom Characteristics</u>	<u>Teacher Behavior</u>	<u>Child Behavior</u>
Complete/Incomplete	Busy/Resting	Busy/Resting
Spacious/Constricted		
Large/Small		
Simple/Complex		
Organized/Unorganized		
Full/Empty		
Soft/Hard		
Colorful/Colorless		
Unique/Commonplace		

These word pairs seem to be the most important descriptors associated with differences in spatial division of the classroom.

Although there are obvious limitations to the generalizations of this information to all early education settings, the results may be helpful in deciding on optimal classroom arrangement for particular situations. The perception of organization is perhaps the most outstanding of these. A moderately divided classroom was perceived as most organized. Also, a classroom without major divisions was perceived as most spacious and simple, but also as most incomplete, hard, and commonplace. A classroom highly divided was perceived as most colorless, most full, and most busy in terms of teacher and child behavior.

The results support the theoretical position that there is a reciprocal and interactive relationship between individuals and their environment. Perceptions of space, organization, activity, etc., change with the introduction

of spatial differences in the environment. Although it is probable that each individual will react to these changes differently, this study does indicate that there are group differences which are measurable.

The practical implications of the study are that elements of the classroom environment do exist which influence teachers' perceptions of the setting. Spatial division with dividers, bookshelves, and cabinets is important. Teachers can make adjustments in spatial division with the knowledge that it will affect their own perceptions of the setting. These perceptions are an important basis for the interactions teachers have with children. An example of the inter-relatedness of environment, perceptions, and teacher-child interactions might be if a teacher perceives a classroom as relatively unorganized and commonplace. The teacher may respond to the environment in a way that does not facilitate organized, unique experiences for children in that classroom. More division of space might change the teacher's perception of the classroom and thus change the teacher's interactions with children in the classroom.

The present study is only a small piece in a very large puzzle. More classroom conditions need to be identified and measured. This measurement must occur in a variety of settings with teachers at different levels. Children's reactions to variations in classroom environments should also be studied. Instruments need to be developed which can readily measure the responses of teachers and children to changes in their environment. The variables used in this study have great potential for future study.

References

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CLASSROOM

complete _____ incomplete
unfriendly _____ friendly
harmonious _____ dissonant
ugly _____ beautiful
constricted _____ spacious
large _____ small
simple _____ complex
organized _____ unorganized
unpleasant _____ pleasant
full _____ empty
calming _____ exciting
soft _____ hard
dangerous _____ safe
colorful _____ colorless
commonplace _____ unique

TEACHER

unfriendly _____ friendly
hateful _____ affectionate
successful _____ unsuccessful
severe _____ lenient
constrained _____ free
unsociable _____ sociable
prohibitive _____ permissive
active _____ passive
busy _____ resting
excitable _____ calm

CHILD

unfriendly _____ friendly
hateful _____ affectionate
successful _____ unsuccessful
severe _____ lenient
constrained _____ free
unsociable _____ sociable
prohibitive _____ permissive
active _____ passive
busy _____ resting
excitable _____ calm